

Title (en)

RACK BAR MANUFACTURING METHOD AND RACK BAR

Title (de)

ZAHNSTANGENHERSTELLUNGSVERFAHREN UND ZAHNSTANGE

Title (fr)

BARRE DE CRÉMAILLÈRE ET PROCÉDÉ DE FABRICATION DE CRÉMAILLÈRE

Publication

EP 3694659 A1 20200819 (EN)

Application

EP 18796138 A 20181010

Priority

- JP 2017196921 A 20171010
- JP 2018037807 W 20181010

Abstract (en)

[origin: WO2019074022A1] A rack bar (14) is manufactured by sequentially inserting a plurality of mandrels into a hollow shaft member with a teeth forming die being pressed against an external surface of a teeth base portion of the shaft member, such that the size of the mandrel in the height direction is increased in a stepwise manner and such that the size of the pressing portion of the mandrel in the width direction is reduced in a stepwise manner. The manufactured rack bar (14) has a first worked surface (15) and a second worked surface (16), both formed on an internal surface of the teeth base portion in a recessed manner and extending in the axial direction. The second worked surface is formed at a central portion of the first worked surface with respect to a tooth-width direction.

IPC 8 full level

B21K 1/76 (2006.01)

CPC (source: EP KR)

B21J 5/02 (2013.01 - KR); **B21J 5/12** (2013.01 - KR); **B21K 1/768** (2013.01 - EP KR)

Citation (search report)

See references of WO 2019074022A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

WO 2019074022 A1 20190418; CN 111201096 A 20200526; CN 111201096 B 20220415; EP 3694659 A1 20200819; EP 3694659 B1 20230712; JP 2019069463 A 20190509; JP 7037906 B2 20220317; KR 102462187 B1 20221103; KR 20200066285 A 20200609

DOCDB simple family (application)

JP 2018037807 W 20181010; CN 201880065988 A 20181010; EP 18796138 A 20181010; JP 2017196921 A 20171010; KR 20207004282 A 20181010